

SECTION 11B – VANCOMYCIN INTERMEDIATE & RESISTANT STAPH AUREUS

I. GENERAL. This policy provides detailed direction for initiating isolation for patients with Suspected or Confirmed Vancomycin Resistant or Intermediately Resistant *Staphylococcus Aureus* Colonization or Infection.

II. SPECIFIC. Isolates of *Staphylococcus aureus* intermediately - resistant to Vancomycin (VISA) has been documented and is a significant pathogen that can be acquired by patients with chronic infections (i.e. long term dialysis), during use of multiple antibiotics (especially the extended use of vancomycin), or by nosocomial spread. VISA is most commonly transmitted from patient to patient on the hands of health care workers (HCW), but it can also be transmitted by contaminated fomites (inanimate environmental objects like bedrails). Nasal carriage by HCWs, as noted with Methicillin Resistant *Staphylococcus Aureus* (MRSA), can also contribute to nosocomial spread. Roommates of VISA patients have an increased risk of colonization and infection with VISA. Colonization of infection due to VISA are globally significant and can result in increased hospital stay and significant morbidity. Persons that developed VISA and VRSA infections had several underlying health conditions (such as diabetes and kidney disease), previous infections with methicillin-resistant *Staphylococcus aureus* (MRSA) or invasive devices, recent hospitalizations, and recent exposure to vancomycin and other antimicrobial agents.

A. Prevalance. VISA and VRSA infections are rare. Only eight cases of infection caused by VISA and two cases of infection caused by VRSA have been reported in the United States.

B. Risk factors for colonization/infection with VISA include patients already infected/colonized with MRSA; patients undergoing renal dialysis; and those with long term use of Vancomycin.

1. Eventually all those factors that are related to MRSA to includes chronic dermatitis, diabetic foot ulcer, peripheral vascular ulcers, and long term care facilities may become a factor as well. "Frequent flyers" and patients in ICU's are also at a higher risk of being colonized from an unidentified VISA patient.

2. Transmission of VISA is more likely to occur from patients with unrecognized colonization and infection. Patients with positive cultures for VISA will be placed on strict contact isolation and also to include a surgical mask (decreases risk of self-innoculation).

C. Isolation Procedures for Patients with VISA colonization or infections:

1. Place patient in a private room. The door must be kept closed.

2. Consult Infection Control Service by calling (703-805-0044) immediately or paging the Infection Control Officer (STAT), who will review the record and make a note in Essentris and most importantly, notify the appropriate individuals at in the

facility, unit head nurse, attending physician (MOD or SOD if after hours), and the WRAMC Infectious Disease Service, and the Centers for Disease Control (CDC)

3. A Contact isolation sign will be placed on the patient's door.

4. All personnel giving direct care or touching patient's equipment will wear gloves, mask (to prevent nasal colonization), and gown. These will be removed when leaving the room and alcohol gel will be used immediately on the hands OR they will be washed immediately with 2% chlorhexidine gluconate and water. Faucets must be turned off using a clean, dry paper towel.

5. A guard will be posted at the door to note/log-in those HCW's entering the room, insure appropriate precautions are taken and insure the patient does not leave room unless ABSOLUTELY necessary. The staff list will be used if it is deemed necessary to do nasal cultures.

6. The patient will have dedicated healthcare staff. Patients in adjacent rooms or those who had been receiving care from the healthcare staff caring for the source patient will be moved. These moved patients will have nasal cultures done to determine colonization with VISA. If there is even one nosocomial transmission of VISA, the unit will be closed and all patients, except those with VISA, will be moved to another area in the hospital.

7. Patients will not be removed from this strict isolation without approval by the DHCS Infection Control Officer and the attending physician in concert with the WRAMC Infectious Disease Service.

8. Trash, linen, and dietary tray will be handled as with other patients. Standard Precautions are used with these items. Items are not allowed to accumulate in the room or outside the door. Isolation carts are to be placed outside the isolation room. They are stocked with only the essential items- PPE (gowns, fluid-resistant gowns, gloves, and masks in them. Place a container of alcohol handwash on top of the cart and also just inside the room. Disposable stethoscope, BP Cuff, and thermometer are placed in the room. Only plastic, vinyl or leather coated furniture that can be wiped down with hospital approved disinfectant should remain in the room. Cloth items that cannot be disinfected will be discarded.

9. Reusable items such as IV pole, wheelchair, and gurney will be thoroughly cleaned with hospital approved disinfectant prior to removal from the room.

10. Transport of patient with VISA will be done only when deemed absolutely necessary, using the following guidelines:

a. The receiving clinic or service will be notified that the patient is on VISA precautions. All drainage will be contained and a clean sheet will be placed on wheelchair or gurney (if used) and patient covered with another clean sheet. Coughing patients will be masked. Personnel transporting the patient will need to wear gloves, gowns, masks and wash hands with 2% CHG after removal of the gloves or use alcohol product.

b. For VISA patients going to ancillary services (i.e. Radiology or Clinics) for procedures, coordination must be accomplished in advance with these areas so housekeeping can be notified of unscheduled room cleaning/disinfection.

c. Nursing staff will remain with the patient until procedure is complete, then transport patient directly back to the unit.

11. Visitors will be instructed to perform hand hygiene before and after visit. If direct care is given or contact is made with the patient or his immediate environment, the visitor will wear gloves, gown and wash hands after glove removal. Visitors are to be reminded not to enter other common areas, i.e. pantry, linen room, etc.

D. Terminal cleaning: When the patient is discharged, all reusable equipment will be cleaned and disinfected with hospital approved disinfectant (HAD) prior to removal from the room. Large equipment such as IV poles, commode chair, K-thermia, etc. will be wiped down with HAD with special attention to areas that hands have touched. All tape and labels will be removed before cleaning.

1. Housekeeping will terminally clean the room with special attention to bed rails, light switches, door handles, faucets, sharps containers, glove dispensers, phones, CIS base & keyboards and restrooms. All horizontal surfaces must be disinfected. As with other patients, discard all contaminated disposable supplies. Keep level of disposable supplies in the room to a minimum.

2. Patient privacy curtains will be removed prior to terminal cleaning and replaced with new curtains following the cleaning process.

3. Once terminal cleaning has been completed the Infection Prevention and Control office will be contacted so environmental cultures can be obtained. Once these cultures have been cleared by Infection Control the room may be used for another patient. (Plan on at least two days turn around time for cultures.)

E. Healthcare workers known to be at higher risk for staphylococcus colonization (e.g., those with exfoliative dermatitides, diabetes mellitus requiring treatment with insulin, or immunocompromised) should not care for patients with VISA colonization or infection.

F. The Infection Prevention and Control Office investigates each case of VISA and reports surveillance data to the Infection Prevention Forum. This policy is extremely strict but must be in order to prevent the potential healthcare-associated transmission of a pathogen that is very virulent and sturdy pathogen with limited treatment options.

APPENDIX A

Fact Sheet: **VISA/VRSA**

What is *Staphylococcus aureus*?

Staphylococcus aureus, often simply referred to simply as “staph”, are bacteria commonly found on the skin and in the noses of healthy people. Occasionally, staph can cause infection; staph bacteria are one of the most common causes of skin infections in the United States. Most of these infections are minor (such as pimples, boils, and other skin conditions) and most can be treated without antimicrobial agents (also known as antibiotics or antibacterial agents). However, staph bacteria can also cause serious and sometimes fatal infections (such as bloodstream infections, surgical wound infections, and pneumonia). In the past, most serious staph bacterial infections were treated with a type of antimicrobial agent related to penicillin. Over the past 50 years, treatment of these infections has become more difficult because staph bacteria have become resistant to various antimicrobial agents, including the commonly used penicillin-related antibiotics.

What are VISA and VRSA?

VISA and VRSA are specific types of antimicrobial-resistant staph bacteria. While most staph bacteria are susceptible to the antimicrobial agent vancomycin some have developed resistance. VISA and VRSA cannot be successfully treated with vancomycin because these organisms are no longer susceptible to vancomycin. However, to date, all VISA and VRSA isolates have been susceptible to other Food and Drug Administration (FDA) approved drugs.

How do VISA and VRSA get their names?

Staph bacteria are classified as VISA or VRSA based on laboratory tests. Laboratories perform tests to determine if staph bacteria are resistant to antimicrobial agents that might be used for treatment of infections. For vancomycin and other antimicrobial agents, laboratories determine how much of the agent it requires to inhibit the growth of the organism in a test tube. The result of the test is usually expressed as a minimum inhibitory concentration (MIC) or the minimum amount of antimicrobial agent that inhibits bacterial growth in the test tube. Therefore, staph bacteria are classified as VISA if the MIC for vancomycin is 8-16 µg/ml, and classified as VRSA if the vancomycin MIC is ≥ 32 µg/ml. [top](#)

How common are VISA and VRSA infections?

VISA and VRSA infections are rare. Only eight cases of infection caused by VISA ([Michigan 1997](#), [New Jersey 1997](#), [New York 1998](#), [Illinois 1999](#), Minnesota 2000, [Nevada 2000](#), Maryland 2000, and Ohio 2001) and two cases of infection caused by VRSA ([Michigan 2002](#) and [Pennsylvania 2002](#)) have been reported in the United States.

Who gets VISA and VRSA infections?

Persons that developed VISA and VRSA infections had several underlying health conditions (such as diabetes and kidney disease), previous infections with methicillin-resistant *Staphylococcus aureus* ([MRSA](#)), tubes going into their bodies (such as intravenous [IV] catheters), recent hospitalizations, and recent exposure to vancomycin and other antimicrobial agents.

What should I do if I think I have a Staph, MRSA, VISA, or VRSA infection?

See your healthcare provider.

Are VISA and VRSA infections treatable?

Yes. To date, all VISA and VRSA isolates have been susceptible to several Food and Drug Administration (FDA) approved drugs.

How can the spread of VISA and VRSA be prevented?

Use of appropriate infection control practices (such as wearing gloves before and after contact with infectious body substances and adherence to [hand hygiene](#)) by healthcare personnel can reduce the spread of VISA and VRSA.

Because VISA and VRSA are only part of the larger problem of antimicrobial resistance in healthcare settings, CDC has started a [Campaign to Prevent Antimicrobial Resistance](#). The campaign centers around four strategies that clinicians can use to prevent antimicrobial resistance: prevent infections; diagnose and treat infections effectively; use antimicrobials wisely; and prevent transmission. A series of evidence-based steps are described that can reduce the development and spread of resistant organisms such as VISA and VRSA.

What should I do if a family member or close friend has VISA or VRSA?

VISA and VRSA are types of antibiotic-resistant staph bacteria. Therefore, as with all staph bacteria, spread occurs among people having close physical contact with infected patients or contaminated material like bandages. Therefore, persons having close physical contact with infected patients while they are outside of the healthcare setting should: (1) keep their hands clean by washing thoroughly with soap and water, (2) avoid contact with other people's wounds or material contaminated from wounds. If you visit a friend or family member who is infected with VISA or VRSA while they are hospitalized, follow the hospital's recommended precautions.

What is CDC doing to address VISA and VRSA?

CDC has established several programs to promote appropriate use of antimicrobial agents because inappropriate antibiotic use is a major cause of antimicrobial resistance. One program that focuses on patients in healthcare facilities is the [Campaign to Prevent](#)

[Antimicrobial Resistance](#). The campaign centers around four strategies that clinicians can use to prevent antimicrobial resistance: prevent infections; diagnose and treat infections effectively; use antimicrobials wisely; and prevent transmission of infections. A series of evidence-based steps are described that can reduce the development and spread of resistant organisms, such as VISA and VRSA. CDC also has published guidance to prevent the spread of vancomycin resistance in healthcare settings.

In addition to providing guidance for clinicians and infection control personnel, CDC is also working with state and local health agencies, healthcare facilities and clinical microbiology laboratories to ensure that laboratories are using proper methods to detect VISA and VRSA ([S.E.A.R.C.H.](#)). Recently CDC developed a training tool for laboratorians to enhance their understanding and improve their proficiency in performing antimicrobial susceptibility testing ([M.A.S.T.E.R.](#)). Accurate antimicrobial susceptibility test results not only help physicians choose the best therapy for their patients, but guide infection control efforts to the most serious infections.

- Four cases of infection caused by vancomycin-intermediate *Staphylococcus aureus* (VISA) have been detected in the United States ([Michigan](#), [New Jersey](#), [New York](#), and [Illinois](#)). These bacteria were already resistant to methicillin (methicillin-resistant *Staphylococcus aureus* [MRSA]). Normally, vancomycin is the most reliable and effective drug for treating MRSA. The appearance of MRSA with reduced susceptibility to vancomycin is concerning, and may be a warning that strains that are resistant to vancomycin could soon appear.
- The four patients with VISA infections were chronically ill and probably developed their VISA infection in a healthcare setting.
- No spread to family members, household contacts, other patients, or healthcare workers was detected.

What is VISA?

- *Staphylococcus aureus*, often referred to simply as "staph," is a bacteria commonly found on the skin and in the nose of healthy people. Occasionally, staphylococci can get into the body and cause an infection. This infection can be minor (such as pimples, boils, and other skin conditions) or serious and sometimes fatal (such as blood infections or pneumonia).
- **MRSA** are staphylococci that are resistant to methicillin and other commonly used antibiotics and they have a unique gene that produces resistance. Therefore, alternate antibiotics must be used to treat MRSA. Vancomycin has been the most effective and reliable drug in these cases.
- **VISA** is not susceptible to vancomycin. Therefore, vancomycin treatment is not reliable for treating these infections. However, to date, all VISA isolates have been susceptible to other Food and Drug Administration (FDA) approved antimicrobial drugs.
- **VISA (vancomycin-resistant *S. aureus*)** is resistant to vancomycin. These organisms have not yet been found in nature but might emerge from VISA. Vancomycin would not be effective at all for treating these infections.

How can the spread of VISA be prevented?

- Use of infection control practices (such as wearing gloves before and after contact with infectious body tissues and proper handwashing) can reduce the spread of VISA.
- Appropriate use of antibiotics (i.e., use only when needed to treat bacterial infections [and avoid overuse]) will reduce the emergence of resistance strains.

What is being done to prevent and control the spread of VISA?

- Programs have been established to promote appropriate use of antimicrobials, especially vancomycin, in all healthcare settings, based on CDC's, "Recommendations for Preventing the Spread of Vancomycin Resistance."
- CDC and state and local health agencies have implemented a special project ("S.E.A.R.C.H.") to detect and evaluate strains of MRSA that might be VISA. When such a strain is detected, special infection control precautions are implemented to isolate the patient and prevent spread to others. In addition, CDC is working with state, local health agencies, and hospitals to ensure that laboratories are using proper methods to detect VISA and the CDC is conducting an ongoing epidemiologic study to determine risk factors for VISA.

II. References:

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